ORGANIZATIONAL INSTRUCTION

Peer Review Plan- S&MA Analysis and its Documentation

OPR(s)

OPR DESIGNEE

All QD Depts

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DOCUMENT HISTORY LOG

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Baseline		9/13/2005	New Document

Peer Review Plan

1.   SCOPE

1.1 Scope

This Organizational Instruction (OI) is applicable to the review, evaluation, and approval of key S&MA analysis and its documentation related to NASA Programs and Project.

1.2 Purpose

This OI provides the procedure that shall be used in the development, evaluation and approval of key S&MA Flight hardware documentation. The review of key S&MA Flight hardware/process documentation early in the design and development phase of a program/project and during key design reviews phase of the program helps identify the potential opportunities for improvement and get it fixed before release. The establishment of a discipline peer review process would facilitate in assuring the quality of various reliability, safety and quality analysis and other products.

1.3 Applicability

This OI is applicable to all S&MA personnel supporting MSFC projects that include S&MA requirements. The instructions identified in this OI shall be used for review, and approval of the key S&MA Flight hardware/process documentation.

2. Applicable Documents

ANSI/ISO/ASQC A9000-2000	*Quality Management Systems – Fundamentals and Vocabulary*
ANSI/ISO/ASQ-Q9001	Quality Management Systems - Requirements
NPD 8700.1	*NASA Safety Policies*
NHB 5300.4 (1D2)	*Safety, Reliability, Maintainability & Quality provisions for the Space Shuttle Program*
NASA-STD-8729.1	*Planning, Developing and Managing an Effective Reliability and Maintainability Program*
OWI ED42-003	*Supportability and Logistics Engineering*

3. Definitions

Peer Review: Peer review is a process used for checking the work performed by one's equals (peers) in same profession to ensure that it meets specific criteria.

All other definitions applicable to this OI are addressed in the following document:

ANSI/ISO/ASQC A9000-2000   *Quality Management Systems – Fundamentals and Vocabulary*

NHB 5300.4 (1D2)   *Safety, Reliability, Maintainability & Quality provisions for the Space Shuttle Program*

NASA-STD-8729.1   *Planning, Developing and Managing an Effective Reliability and Maintainability Program*

OWI ED42-003   *Supportability and Logistics Engineering*

4. **Instructions/Guidelines**

4.1.1   When to Request Peer Review: Highest technical integrity and quality of MSFC S&MA products are vital to the success of NASA Programs and Projects. S&MA discipline champions have been designated to help S&MA Management with their independent assessment of the key flight documentation and analysis.

To assure highest integrity of manned flight program and other NASA programs, respective QD managers are directed to request peer review of key reliability, maintainability, systems safety and quality engineering analysis and its documentation by respective discipline champions. This primarily includes baselining respective analysis and its documentation during conceptual design stage, major milestone reviews, and major product/process modifications. Evaluations shall include an explicit recommendation of what to do with the document such as:
   - Unconditionally accept the document
   - Accept it with comments, subject to incorporation of comments to the document by the author of the document
   - Reject the document with an action to make it technically acceptable.

However day-to-day tasks would be executed by respective QD10, 20, 30 team members with their supporting service contractor staff.

Representative Example of Peer Review Items:
1. Reliability and Maintainability
     o FMEA/CIL Analysis
     o Reliability Block Diagram
     o Reliability Prediction
     o Reliability Plan

- o Reliability Trade Studies
- o Reliability Audit
- o Assessment of PRACA system and Trending
- o Statistical Analysis
- o Integrated Statistical Process Control Plan
- o Probabilistic Risk Assessment
- o R&M DRDs
- o R&M Statement of Work
- o Maintainability Analysis and Plan
- o Corporate and Center Policies, OIs and Procedures
- o Identification of Critical Processes
- o Review and Critique of Engineering Accept/Reject criteria for Key Performance Parameters
- o Assessment of Mission Risks for monitoring the current status versus the targeted goals

2. Systems Safety
    - o Flight Hazard Reports
    - o Fault Tree Analysis
    - o System Safety Plan
    - o System Safety DRD
    - o Corporate and Center Policies, OIs and Procedures
    - o Assessment of Mission Risks for monitoring the current status versus the targeted goals

3. Quality Engineering
    - o Quality Plans
    - o Quality Audit Plans and Results
    - o Assessment of Non Conformance Database and Trending
    - o Statistical Quality Control Plan
    - o HQ and Center Policies, OIs and Procedures
    - o Critical Process Documentation
    - o Assessment of Mission Risks for monitoring the current status versus the targeted goals

4.1.2 Submission Procedure and Timeline for Peer Review: Respective QD 10, 20 or 30 Management/Lead Engineer will submit an official request to respective discipline champion and QD40 Manager for the review of respective analysis with sufficient and reasonable lead time. The submittal must include complete documentation of the Analysis along with the necessary engineering, assumptions and ground-rules used for the analysis. Additional information as requested by reviewers will be expeditiously provided. QD40 Management and Discipline champions shall discuss its current commitments, discuss it with the requesting organization and determine a mutually agreeable schedule.

4.1.3   Peer Review Team: Peer Review shall be done under the leadership of respective Discipline Champion (QD40) with team members from QD20/QD10/QD30 (as applicable) and support services contractor personnel.

4.1.3.1   Peer Review Team Recommendation: The Peer Review Team shall make official recommendations to the requesting organization and S&MA Management.

4.1.4   Arbitration of Peer Committee Decision: In case, the requesting organization disagrees with the decision of the discipline champion and/or peer reviewers, the requesting organization and the discipline champion shall discuss the details with S&MA Director (or designee) for final S&MA decision best suited to protect our astronauts, customers and NASA.

5.   **Notes**

None

6.   **Safety Precautions and Warning Notes**

N/A

7.   **Appendices, Data, Reports, and Forms**

None

8.   **Quality Records**

None

9.   **Tools, Equipment, And Materials**

N/A

10.   **Personnel Training And Certification**

Training beneficial but not mandated includes applicable reliability, safety and quality engineering and program management concepts and principles.